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ABSTRACT

New discoveries about the brain and how it functions and significant findings from process/product research have major implications for the teaching profession. Connecting these discoveries and findings with classroom methods was the focus of the second annual Making Connections symposium. These proceedings from the symposium provide four overviews of programs developed by innovative educators: (1) "Integrating Dynamic Assessment and Instruction" (Joseph Campione); (2) "As the Curriculum Turns: California's Yesterday is Baltimore's Tomorrow" (Nancy Karweit); (3) "Philosophy for Children" (Matthew Lipman); and (4) "Reciprocal Teaching" (Annemarie Palincsar). The publication also includes comments from the symposium planners and a section on evaluation which describes procedures and results of an evaluation of the symposium's impact on participants. Appendices include biographies of the presenters and examples of the evaluation forms used. (IAH)

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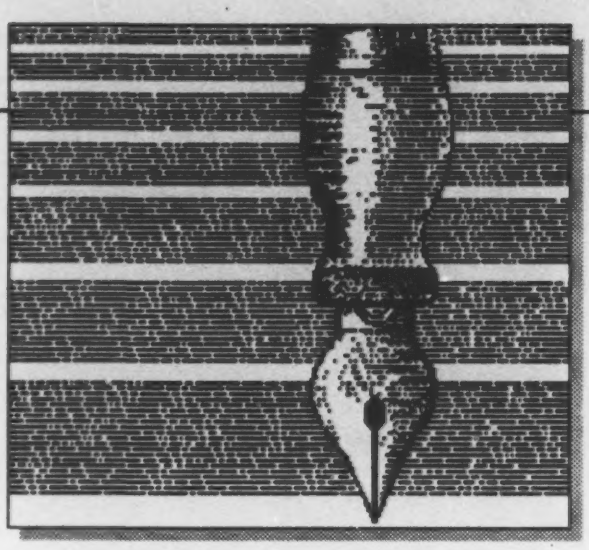

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Making Connections II: Four Educational Perspectives

Symposium Proceedings

edited by
Kimberly Hambrick

September 1991

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edited by
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September 1991

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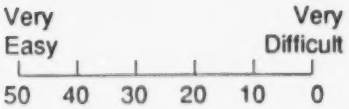

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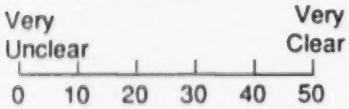

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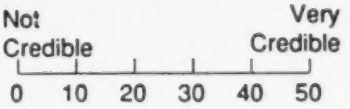

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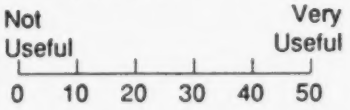

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FOREWORD

The Appalachia Educational Laboratory collaborated with the Center for the Advancement of Teaching and Learning at Radford University, Roanoke County Schools, and the Virginia Department of Education to plan the second annual Making Connections symposium. "Making Connections II," held November 7-9, 1991, in Roanoke, Virginia, brought together four innovative educational developers to interact among themselves and with the symposium participants about their respective educational research programs.

Educational developers invited to make connections were Joseph Campione (Integrating Dynamic Assessment and Instruction), Nancy Karweit (Whole Language Learning), Matthew Lipman (Philosophy for Children), and Annemarie Palincsar (Reciprocal Teaching).

Approximately 100 participants attended the symposium and engaged in direct exchange with these educational developers. Participants were able to attend two of four sessions in which the four developers were paired together and asked to make connections between their respective programs.

Making Connections II: Four Educational Perspectives, Occasional Paper 33, provides the proceedings for the "Making Connections II" symposium. Included are the overviews provided by each educational developer and comments from the symposium's planners. An evaluation section provides participants' comments about the symposium and suggestions for the third Making Connections symposium.

ACKNOWLEDGMENTS

by Sheila Reyna, CE-ATL
Radford University

There is no way to accomplish a conference successfully without multiple contributors. "Making Connections II" is no exception. I want to sincerely thank Beth Nelson, Radford University; Yvonne Thayer, Virginia Department of Education; John Sanders, Appalachia Educational Laboratory; and, particularly, "in memoriam," John Arnn, Jr., former dean of the Radford University College of Education and Human Development.

John's support and enthusiasm for the advancement of teaching and learning as a lifelong endeavor gave rise to the Center for the Advancement of Teaching and Learning, and the second Making Connections conference. Although he continues to be sorely missed, he lives on through his recognition of the need for continuing support of education as a profession through the Center's concern for lifelong career development. The Center continues to work toward excellence in teaching and learning for all—and the third Making Connections symposium in 1993.

SECTION I: INTRODUCTION

by Beth Nelson and Sheila Reyna,
CE-ATL, Radford University

Startling new discoveries about the brain and how it functions and significant findings from process/product research have major implications for the teaching profession. How can educators keep abreast of a rapidly expanding knowledge base? Who will bring together scholars and researchers to discuss the implications of new findings? What information is important enough that valuable time and resources should be devoted to its dissemination?

The brain is now viewed as an organ for learning, and an important breakthrough occurred when studies related to the physiology of the brain enlightened the studies of the cognitive process. Those connections continue to be made, and the need to highlight the implications for teaching and learning increases with each discovery.

The Appalachia Educational Laboratory (AEL) and the Radford University Center for the Advancement of Teaching and Learning (CE-ATL, formerly the Center for Cognitive Teaching), working with other educational agencies, are providing a unique setting and format for educators seeking to learn about and apply the growing professional knowledge base. They jointly sponsor a symposium called Making Connections that features noted scholars and researchers. The presenters seek to discover and reveal the connections that necessarily must be made before classroom teachers can utilize new concepts and methods.

Educators cite the initial symposium in 1989 and the more recent one, described in this document, as useful models for professional development. Participants are made aware of the time it takes to process, in a meaningful way, new information. Such processing is facilitated in a setting where questions are raised, probabilities are considered, and participants are encouraged to be active in the learning process. Presenters prepare in advance by studying one another's work, but it is through the interaction with each other and the participants that the real and most useful connections are made.

The advancement of teaching and student learning is contingent upon the deliberate and continuing pursuit of intellectual growth by educators. Reflection is not a one-time activity that can be learned through a series of isolated professional experiences. There must be a continuous emphasis upon the acquisition of "the habit of reflection." Annual conferences such as Making Connections exhort educators to develop an analytic approach to teaching, and such events also provide information upon which to reflect. Coherent plans aimed toward recertification that include participation in professional conferences should contribute to the desired end: Excellence in teaching practice and increased performance in student learning.

The Center works to integrate theory and practice for lifelong professional development through research, curriculum and instructional design, and dissemination of its products to education publics. We look forward to a future of helping professional educators make connections between research and practice in a "reflective" way throughout their careers.

SECTION II: EDUCATIONAL PERSPECTIVES

In November 1990, four innovative educators met in Roanoke, Virginia, for "Making Connections II." Joseph Campione, Nancy Karweit, Matthew Lipman, and Annemarie Palincsar were invited by AEL and CE-ATL to make connections through and among their educational perspectives. Following are brief overviews of each presenter's perspective (see Appendix A for presenter biographies).

Integrating Dynamic Assessment and Instruction

by Joseph Campione
University of California

Our work over the past half dozen or so years has centered on devising and evaluating a powerful learning environment that integrates "basic" literacies (reading, writing, and computing) with the learning of science content (environmental science/biology). A major part of that effort includes the development of alternative forms of assessment, many best described as variations on a dynamic assessment theme.

The program grew out of a set of long-standing concerns about traditional instruction and assessment. Graduates of our schools have been characterized as having shortcomings in two general areas.

- **Knowledge**. One worry is that students are seen as unlikely to have acquired deep and well-understood bases of knowledge in the major academic areas. Their knowledge of history and geography is remarkably sketchy, and students' competence in scientific areas, such as biology, chemistry, and physics, is remarkable primarily for its **lack of deep understanding** and the possession of a variety of **misconceptions** about the discipline. While students may acquire information about portions of the discipline, they lack strong relations among those sets.
- **Critical Thinking**. This problem of fragmented knowledge is exacerbated by the fact that students are also seen to lack the critical thinking skills needed to acquire and evaluate new information. Because of the knowledge limitations, students leave school relatively unprepared to work effectively in a technological society. Further, failures to master critical thinking skills make it difficult for those students to adapt readily to new settings.

Our argument is that these shortcomings—impoverished knowledge bases and weak critical thinking skills—are not unrelated, and furthermore are not a surprising outcome of traditional primary and secondary level curricula. The emphasis in the case of the major enabling literacies—reading, writing, and mathematics—is initially on the acquisition of the major component subskills (decoding in reading, neatness and syntax in writing, and computation in mathematics) assumed to underlie successful performance. Even when "understanding" is purportedly the target of instruction, there continues to be a focus on teachers teaching, and students practicing, decomposed and decontextualized skills. Students are hence offered no

real opportunity to learn the critical thinking skills that permeate the cognitive repertoires of accomplished readers and writers, and thus do not amass the foundational skills needed to abet their later learning.

This situation is compounded by the nature of instruction in the later grades. The emphasis on breadth of coverage in, for example, science courses allows students—in fact encourages them—to proceed without building strong relations among the various concepts to which they are exposed. Students are not required to delve into subject matter in depth and, as a consequence, are not in a position where it is easy for them to learn to critically evaluate new information. If instruction remains at a surface level, and deep understanding is not required, processes of evaluation and reflection will not likely come into play, and hence are not liable to be learned. Overall, the combined effect of the emphasis on decomposed and decontextualized skills practiced in the early years, coupled with the focus on breadth rather than depth in the later years, means that students are continuously placed in settings where they are neither taught nor encouraged to critically evaluate what they are asked to learn.

These effects are exacerbated by the standard tests routinely used to evaluate student competence. In line with the instructional emphasis, tests of basic literacies emphasize assessment of student ability to demonstrate proficiency with the subskills associated with the particular domain, rather than with the larger task, for example, of reading for meaning. In science, the tests tap student knowledge of definitions and simple facts, rather than in-depth understanding of generative principles or the relations among the various concepts to which they are exposed. Thus, these tests reinforce the instructional emphasis, and the combined effect would be to produce students with exactly the shortcomings described.

Our approach has been to work on an environment in which both instruction and assessment are altered in dramatic ways. The assumption is that significant change can come about only when there is simultaneous attention to both sets of issues. Traditional tests will not be sensitive to the changes in students' thinking we wish to bring about with novel instructional formats; and altering assessment practices without building ways of fostering student critical thinking and evaluation will similarly not go far enough toward solving the problem.

In the following discussion, I will describe both the instructional program we have developed and are testing, and the ways in which we are attempting to assess student progress.

Instruction. Our aim is to have students read, write, and use computer tools in the service of learning science content. Structurally, we have adapted Aronson's Jigsaw Classroom Approach, in which groups of students (research groups) take responsibility for mastering some portion of the curriculum; they do library research using a variety of materials, including books, journals, magazines, videotapes, and videodiscs. They then break up and reassemble as learning groups, each consisting of one member from each research group. It is the responsibility of the local experts within each group to play the major role in teaching their specialty to the remainder of the group members. To support the teaching role, the research group members produce an illustrated text that is handed out to the whole group. On the basis of their teaching experiences, the group then revises the text as necessary, and eventually submits it for publication in a whole class book covering the year's work. This procedure is repeated over three sets of units. The idea is that the students will engage in considerable reading and writing as they produce their initial texts, they will be able to evaluate their own depth of understanding as they attempt to teach the material to others, and they will have a clear reason for revising the writing they have done, as they incorporate other students' comments and criticisms. The computer facilitates their writing, illustrating, and revising. In addition, the class includes an electronic mail component that allows students, both within and between research groups, to exchange information and comment on each other's work. The students also communicate with their teacher and the school staff within this system. The final component of the program is a set of "hands-on" experiments that the students design and carry out for themselves as questions arise throughout the course.

Assessment. Over the year, we evaluate students in terms of their reading proficiency, using both standard tests and our criterion-referenced materials; writing skills, through evaluation of the initial and revised versions of the texts they produce to support their teaching and eventually submit for publication; computer skills, as they use the computer to create texts and to communicate with their peers and teachers; their scientific inquiry skills, as they design, conduct, and interpret experiments; their argumentation and critical reasoning capabilities, as they teach their specialty to their classmates; and, of course, their content knowledge. Across these various assessments, the common goal is an attempt to evaluate the processes of thinking, writing, reasoning, etc. We rely in good part on "the three p's": performance assessments, long-term projects, and portfolios. As in many dynamic assessment approaches, we also evaluate students' readiness to learn new portions of the curriculum by observing and testing them as they are being guided to learn new concepts and to extend recently acquired ones.

As the Curriculum Turns: California's Yesterday is Baltimore's Tomorrow

by Nancy Karweit
Johns Hopkins University

Current Setting in Education

- Continued concern about failure of schools: high dropout rates, illiteracy retention rates, failure to produce skilled workers for a technologically sophisticated economy, continuation and deepening of underclass, teachers who are not prepared, students who are not ready for school, students who fail, and students not interested in learning.

- Refutation of past strategies: criticism of accountability mania; tests that lack authenticity; curricula that are boring, tired, and don't work; methods that are not producing results; and a realization of the need for radical change. Restructuring of schools that goes beyond patching up and filling in. Movement away from centralized, standardized, product-oriented, technocratic view of school to decentralized, personalized, process-oriented approach. Rules, roles, and processes changing dramatically. Emphasis on teaching for meaning, emphasis on teacher empowerment, on child-centered approaches, and on collaboration and cooperation. Shift in view of learner from view of child as passive recipient of knowledge to active constructor. Shift in view of teacher, from implementor of curriculum or basal series doer to maker of curriculum and facilitator of learning. Shift in view of principal from implementor of district plan to building and instructional leader. Difference in view of standards for performance, multiple standards, and multiple paths to standards.

Whole language is a philosophy that dovetails with this shift in educational focus from product to process. In its broadest sense, whole language is about radical restructuring of schools; in a more narrow sense, it is about the role of direct instruction in such things as phonics or comprehension strategies.

The basic tenets of this view of schooling are:

- Children and their needs are at the heart of schooling. The whole language perspective places faith and trust in intrinsic motivation and curiosity of children. Children in whole language classrooms are active participants in the design and execution of their learning. Whole language denounces the view that children do not know how to learn until they are taught. Finally, children do not need external motivators or rewards to maintain their interest or motivation.

- Literacy development is an interrelated facet of language development. Children acquire literacy in the same way as oral language—naturally and over time through extensive exposure to real literacy tasks. Listening, speaking, reading, and writing are interrelated aspects of language development...one aspect should therefore not be emphasized prior to the other. Separate instruction in the four areas does not occur.

  Connections between reading and writing are fostered. Writing is viewed as process and invented spelling is used. Reading is treated holistically and from whole texts; reading is not broken down into separate subskills. Reading of real texts, not simplified or contrived passages, is stressed.

- The teacher functions in the whole language classroom not so much as the leader of direct instruction, but as the facilitator of children's learning. The teacher does not lecture children, but structures opportunities for children's learning. Implicit trust is placed in the teacher as a professional who is capable, adaptable, and resourceful.

- Children acquire literacy by working from the whole to the part, from what is familiar to the unknown. Through immersion in a print-rich environment, children become familiar with printed materials and naturally progress from a state of cognitive confusion to one of clarity. Children extract from whole language used in social context the information needed to facilitate language learning that proceeds from global to detailed.

  The use of whole text is emphasized from the beginning—whole stories, poems, or rhymes. Children then learn from an early age that narratives have a structure with beginning, middle, and end, and that there is usually a problem in a story and the story is about the problem and its resolution.

- Reading is a process of thinking, not a process of identifying words. Reading is an active constructive process in which children use cues (semantic, syntactic, and graphphonemic) to make meaning.

Table 1 provides an informal evaluation of learning in whole language and conventional classrooms.

Table 1

Informal Evaluation of Learning in Whole Language and Conventional Classrooms

Whole language classrooms	Conventional classrooms
Global Criteria	
Is the teacher in step with the student?	Is the child out of step with the curriculum?
Does the teacher accept and value approximations, risk taking, and efforts toward meaning?	Is the student successful in: • keeping up with age mates; • getting work done correctly; and • following standard English conventions in oral reading, writing, and spelling?
Is the child developing a sense of empowerment and an authentic view of what it means to be literate?	
Is the child learning to read, write, and communicate?	
Self monitoring: Does the child know when s/he is right or wrong?	Does the child follow externally imposed rules and directions?
Type of Evaluation	
Focus on meaning and/or the learning process.	Focus on correctness or convention.
Focus on the communicative process, independence via peer support encouraged; generous learning time allowed for experimentation and using communicative processes.	Focus on mastery of an isolated individual's performance, peer support overlooked or denied.
Quality of thinking valued.	Quantity of work products completed correctly valued.
Intrinsic motivation, e.g., author's chair; communicating for purposes, including publishing.	Extrinsic motivation; rewards for achievement, escaping sanctions.
Progress measured as related to ability to orchestrate language processes holistically.	Progress measured as related to task completion, often of subskills.

Philosophy for Children

by Matthew Lipman
Montclair State College

Emergence of Critical Thinking

The 20th century has been as turbulent with regard to education as it has been in many other aspects. Over and over, traditional education has been indicted as "irrelevant," and accusations have been made that the contents taught in each discipline are archaic and no longer applicable by students to the world in which they live. For a time, the pendulum swung in favor of "process" rather than "content," but it has now begun to swing back and find an equilibrium. Interestingly, however, the very nature of "process" has changed: It is no longer made up of "teaching methods"; instead, it is emphasizing getting students to think—and to think for themselves—about the subjects they are expected to study. Indeed, **thinking** has now begun to share with **learning** the focus of the entire educational process. For an increasingly large number of educators, the educated student is not merely one who has acquired a certain knowledge, but one who has become reflective rather than impulsive, reasonable rather than unreasonable, judicious rather than injudicious, and critical rather than uncritical.

Of course, scholars in the areas of logic and rhetoric had long fought against the various forms of mental slovenliness and superficiality that led students to be imperceptive of ambiguities, unaware of their own presuppositions, and an easy prey to a vast spectrum of biases and prejudices. What was new, starting in the 1970s, was the ground swell of interest in the cultivation of better thinking among school children, as well as among college students. In the 1980s, this preoccupation is to be found everywhere on the educational scene. There are few educators today who do not realize that basic skills like reading and writing are not enough: There must be reading for meaning and writing for meaning. As a result, the focus of education, which had shifted from learning to thinking, has shifted again in the direction of critical thinking, and may continue to move in the direction of "higher-order thinking"—a combination of the critical and the creative.

These changes in the definition of education are no doubt related to changes in the prevailing image of an educated person, which seems to be tilting in the direction of persons who can make decisions, solve problems, and, in short, make accurate and responsible judgments. Professionals—doctors, architects, engineers, and the like—are increasingly being seen as people of this kind—people trained to be rational, judicious, and accountable, rather than merely knowledgeable. Increasingly, teachers are beginning to see themselves as professionals, and to see their students as individuals who, when grown up, will have to know how to employ reasons and criteria in the making of sound and reliable judgments. There seems to be widespread agreement that the way to make education more relevant is by making it more practical and serviceable.

American educators, long accustomed to excluding philosophy for the elementary school curriculum, have begun to see, thanks to the critical thinking movement, that if thinking belongs in education, then perhaps philosophy does too. Since 1980, many prominent educational psychologists, such as Jerome Bruner, Robert Sternberg, John Bransford, Beau Fly Jones, and Marilyn Adams, have noted the exceptional qualities of Philosophy for Children. Even this year, *Learning* hailed it as one of the "ten top thinking skill programs." What outside observers generally seem to respect most about Philosophy for Children is that it, more than any other program, embodies the **reasoning** and **judgment** components of critical thinking. These are, indeed, prime components of **reasonableness** as well, and reasonableness is indispensable when we are seeking the peaceful resolution of conflict situations.

It should perhaps be added that Philosophy for Children represents still another currently popular movement, that of Applied Philosophy. Philosophers now work as mediators and conciliators in hospitals, courts, and corporations. Many see Philosophy for Children currently as philosophy applied by children to the problems of their own personal experience.

How Philosophy for Children Works

Until just a few years ago, it was customary to assume that children were egocentric creatures incapable of dealing with abstract notions, such as principles, reasons, or concepts. Thanks to the work of G. H. Mead, Lev Vygotsky, and others, this is no longer the case: Teachers and parents alike are beginning to acknowledge that children can be reasoned with, and generally turn out to be quite reasonable. As for abstract concepts, small children may be unfamiliar with words like justice and reciprocity, but terms like right, wrong, fair, and unfair are parts of their normal vocabulary. Moreover, they enjoy discussing what they mean by such words.

If, then, children are capable of thinking at a higher level than we had realized, what can we do to move them to that higher level? How can we get them to arrive at a better understanding of what fairness and peace mean, and then make judgments that reflect such understanding? What can be done to get children to engage in fairness-making, peacemaking practice?

On the conceptual side, then, students must become much more conversant with the meaning of such concepts as peace, freedom, equity, reciprocity, democracy, personhood, rights, and justice than they presently are, even though this may bring to the surface profound disagreements about such meanings. Ideally suited for this purpose is the discipline of philosophy, drastically redesigned so as to make it suitable for children. On the behavioral side, students must become much more practiced in the procedures of rational deliberation, so that they may discover the stereotypes and self-centeredness in their own thinking, and move on to a reduction of prejudice and a resolution of conflicts. Ideally suited for bringing about this change in practice is the pedagogy known as the "community of inquiry," a pedagogy generally identified with elementary school philosophy, but reaching well beyond it.

When ordinary classrooms are converted into communities of inquiry, students are free to generate and exchange ideas, clarify concepts, develop hypotheses, weigh possible consequences, and, in general, deliberate together while learning to enjoy their intellectual interdependence. Like juries, which they in many ways resemble, these classroom communities develop skills that enable them to isolate problems for manageable discussion and resolution, even when the settlement of larger issues is elusive. But whether the dialogue moves on to many individual judgments or to a single judgment for which the group as a whole is responsible, the students find themselves engaged in negotiation, as well as in claim-making, and in mediation and conciliation, as well as in argument. Dogmatism and fanaticism are replaced by intellectual cooperation, whose value is more highly prized than doctrinal victories.

A typical Philosophy for Children class begins with the students taking turns reading aloud from one of the specially written texts. These texts are stories about a group of school children who discover reasoning for themselves, and proceed to reason about a fairly large number of traditional philosophical concepts, such as truth, justice, law, community, and right. These fictional children thus serve the live children in the classroom as models of thinking-in-community. The students in the classroom now identify the topics they wish to discuss, and, as they proceed to do so, the teacher provides exercises, activities, and discussion plans to give the dialogue greater focus and specificity.

One of the conclusions that emerges from the Philosophy for Children experience is that young people enjoy discussing highly complex and abstract issues that they themselves happen to find exciting. That these matters may be permanently contestable does not seem to faze them: They are happy just to make a bit of progress each session—a previously unsuspected connection here or a distinction there. And they enjoy thinking cooperatively: building on each other's ideas, pointing out each other's assumptions, offering counter-examples to each other's arguments, and constructing alternative hypotheses.

Reciprocal Teaching

by Annemarie Palincsar
University of Michigan

Definition

Reciprocal teaching is an instructional procedure designed to enhance the student's comprehension of text. The procedure is best characterized as a dialogue between teacher and students. This dialogue is structured by the use of four strategies: summarizing, questioning, clarifying, and predicting. The teacher and students take turns assuming the role of teacher in leading this dialogue.

Purpose

The purpose of reciprocal teaching is to facilitate a group effort between teacher and students, as well as among students, in the task of bringing meaning to text. These strategies were selected because they not only promote comprehension, but they also provide opportunities for the students to monitor their own comprehension. Instruction that is conducted for the purpose of increasing students' awareness and regulation of their own activity is referred to as metacognitive instruction.

More specifically, each strategy was selected for the following reasons.

Summarizing provides the opportunity to identify, paraphrase, and integrate the most important information in the text. Text can be summarized across sentences, across paragraphs, and across the passage as a whole. When the students first begin the reciprocal teaching procedure, their efforts are generally focused at the sentence and paragraph levels. As they become more proficient, they are able to integrate at the paragraph and passage levels.

Question generating reinforces the summarizing strategy and carries the learner one more step along in the comprehension activity. When students generate questions, they first identify the kind of information that is significant enough that it could provide the substance for a question. Then they pose this information in a question form and self-test to ascertain that they can indeed answer their own question. Question generating is a flexible strategy to the extent that students can be taught and encouraged to generate at many levels. For example, some school situations require that students master supporting detail information; others require that the students be able to infer or apply new information from text.

Clarifying is an activity that is particularly important when working with students who may believe that the purpose of reading is saying the words correctly; they may not be particularly uncomfortable that the words and, in fact, the passage are not making sense. When the students are asked to clarify, their attention is called to the fact that there may be many reasons why text is difficult to understand; for example, new vocabulary, unclear referent words, and unfamiliar and perhaps difficult concepts. They are taught to be alert to the effects of such impediments on comprehension and to take the necessary measures to restore meaning (e.g., reread, ask for help).

Predicting requires students to hypothesize what the author will discuss next in the text. In order to do this successfully, students must activate the relevant background knowledge they already possess regarding the topic. The students have a purpose for reading; to confirm or disprove their hypotheses. Furthermore, the opportunity has been created for the students to link the new knowledge they will encounter in the text with the knowledge they already possess. The predicting strategy also facilitates use of text structure as students learn that headings, subheadings, and questions embedded in the text are useful means of anticipating what might occur next.

In summary, each of these strategies was selected as a means of aiding students to construct meaning from text, as well as a means of monitoring their reading to ensure that they are, in fact, understanding what they read.

A portion of a reciprocal teaching dialogue will help illustrate the nature of the instructional procedure. First-grade students are discussing a story about aquanauts that the teacher has read aloud.

Student 1: My question is, what does the aquanaut need when he goes under water?
Student 2: A watch.
Student 3: Flippers.
Student 4: A belt.
Student 1: Those are all good answers.
Teacher: Nice job! I have a question too. Why does the aquanaut wear a belt, what is so special about it?
Student 3: It's a heavy belt and keeps him from floating up to the top again.
Teacher: Good for you.
Student 1: For my summary now...This paragraph was about what the aquanauts need to take when they go under the water.
Student 5: And also about why they need those things.
Student 3: I think we need to clarify "gear."
Student 6: That's the special things they need.
Teacher: Another word for gear in this story might be equipment, the equipment that makes it easier for the aquanauts to do their job.
Student 1: I don't think I have a prediction to make.
Teacher: Well, in the story they tell us that there are "many strange and wonderful creatures" that the aquanauts see as they do their work. My prediction is that they will describe some of these creatures. What are some of the strange creatures that you already know about that live in the ocean?
Student 6: Octopuses.
Student 3: Whales?
Student 5: Sharks!
Teacher: Let's listen and find out! Who will be our teacher?

Implementing Reciprocal Teaching

Introduction to the students. When reciprocal teaching is first introduced to the students, it is with some discussion regarding the many reasons why text may be difficult to understand, why it is important to have a strategic approach to reading and studying, and how the reciprocal teaching procedure will assist the students to understand and monitor their understanding as they read.

The students are then given an overall description of the procedure emphasizing that it takes the form of a dialogue or discussion about the text and that everyone takes a turn assuming the role of teacher in this discussion. To illustrate, the person who is assuming the role of teacher will first ask a question that covers important information that has been read. The members of the group answer that question and suggest others they may have thought of. The "teacher" then summarizes the information read, points out anything that may be unclear, leads the group in clarifying, and, finally, predicts the upcoming content.

To ensure a minimal level of competency with the four strategies, the students receive practice at a very fundamental level with each of the strategies. For example, they summarize their favorite movie or television show. They then identify main idea information in brief and simple sentences and graduate to more complex paragraphs that contain redundant and trivial information. Each strategy receives a day of introduction.

Beginning the dialogue. After the students have been introduced to each of the strategies, the dialogue begins. For the initial days of instruction, the adult teacher is principally responsible for initiating and sustaining the dialogue. This provides the opportunity for the teacher to provide further instruction and to model the use of the strategies in reading for meaning. The adult teacher may want to begin the initial lessons by calling upon more capable students who will serve as additional models, but it is important that every student participate at some level. For some students, this participation may be such that they are noting one fact they acquired in their reading. This is a beginning. Over time, the teacher, throughout modeling and instruction, can guide that student toward a more complete summary.

As the students acquire more practice with the dialogue, the teacher consciously tries to impart

responsibility for the dialogue to the students while he or she becomes a coach, providing the students with evaluative information regarding the job they are doing and prompting more and higher levels of participation.

A Few Words Regarding the Reciprocal Teaching Procedure

General procedure. For the initial days of teaching, you will most likely need to do a considerable amount of modeling. Take your turn as teacher for the first several segments. Keep the initial segments restricted to single paragraphs. Use text that is fairly well organized. Encourage student involvement by having the students elaborate or comment upon the information you have provided. Assign students whom you feel will be successful with the activity on the initial days so that the students have more opportunities to model.

Always give the students plenty of specific feedback that is informative, e.g., "That was an excellent summary, since you included the most important information"; "You worded that question well, but it concerned a minor detail. Can you ask a question about more important information?"

Don't forget the power of modeling. When you feel a strategy could be improved, comment, "I might summarize by saying..." or "The question I had thought of was..."

For the initial days of teaching, review the four activities with the students, recall why they are learning the strategies, as well as when and how they might be helpful.

Give the students information that will help them evaluate how well they are learning and applying the strategies, e.g., point out that each day they are functioning more independently, that you enjoy learning from them, that you are proud of the way they are able to help one another.

Regarding questioning. Students should be encouraged to ask "teacher-like" questions that concern important information from the text. The question should be clear and stand by itself.

Fill-in-the-blank questions should be discouraged unless that is all students can do initially. Remember that you will **not** expect the **same** kind and level of participation from all of your students; but you do expect them all to participate at a level appropriate for each.

If the student cannot think of a question, you may wish to begin by having the student summarize first.

If the student is still having problems, provide the necessary prompts, e.g., identify the topic that might be appropriate, provide the question word to start the student.

Regarding summarizing. There is considerable variability in what teachers regard as good summaries; we have encouraged our students to identify the "main idea" of the paragraph, as well as an example of supportive information to that main idea.

Encourage students to attempt their summaries without looking in the passage. This is particularly helpful if you have a student who summarizes by reading sentences from the paragraph or reiterating every point in the paragraph.

Remind the students of rules they can use to generate summaries; look for topic sentences, make up topic sentences if one is not available, name lists, and delete what is unimportant or redundant.

Regarding predicting. Always begin a new passage by having students predict based upon the title. Ask them to predict upon the basis of what they expect the text might be about or what they might like to learn from the text. Encourage the group to share information they already know about the topic. Refer to their prediction as you read the text, interweaving what they have suggested with what the text offers.

Use headings to help stimulate predictions.

Other opportunities for predicting occur when: (a) the author poses a question in the text and (b) the structure of the text suggests what will be discussed next (e.g., "There are two kinds of camels, the first is the one humped...").

The prediction strategy should be used in a flexible and opportunistic manner. In other words, it is not appropriate to continue to ask for predictions for every paragraph throughout the story. There may not be adequate information to generate additional predictions. Consequently, the predictions could become meaningless.

Regarding clarifying. Opportunities for clarifying occur when: (a) there are unclear referents

(e.g., you, it, he); (b) difficult or unfamiliar vocabulary concepts are presented; (c) the text is disorganized or information is incomplete; and (d) the author uses unusual, idiomatic, or metaphorical expressions (e.g., "The fire walked down the street.").

Again, it is not appropriate to expect something that will need to be clarified in each paragraph. First, try to elicit unclear points from the students. If none are forthcoming, point out that you have observed something that could be unclear or confusing. This is an activity that students are unaccustomed to. We have found that students are more responsive if they are asked to point out something that might be unclear to a younger student.

SECTION III: EVALUATION RESULTS

by Kimberly Hambrick
Appalachia Educational Laboratory

Three methods were used to evaluate the impact of the symposium, "Making Connections II." Evaluation methods included participants' informal feedback to the evaluator during the symposium, a written evaluation completed immediately after the symposium (see Appendix B), and a post-event telephone survey (see Appendix C for instrument) three months after the symposium (a sample of 12 participants was picked randomly from a registration list).

Evaluation data from the first two methods were positive. Overall, participants were pleased with "Making Connections II." Comments included "well organized," "thought provoking," and "stimulating." One participant said the symposium was a "good battery charger."

The majority of this section will focus on the third evaluation method, the telephone survey, conducted three months after the symposium. Data from this method will measure the impact of the symposium on the participants.

Telephone survey questions focused on what the participants recalled about the symposium; what connections, if any, did they make at the symposium and since the symposium; how have they used materials and information from the symposium and with whom have they shared the materials and information; and what suggestions did they have for a third Making Connections symposium. The survey questions will be examined below, with participant responses included as appropriate.

When asked what aspects/features of the symposium they recalled best, 17 percent of the participants recalled one of the four methodologies presented and 33 percent recalled the presenter's name in addition to the methodology. The remaining participants recalled an aspect of the symposium's format.

When asked what one aspect/feature of the symposium stands out most in their minds, 41 percent of the participants recalled Annemarie Palincsar's session on reciprocal teaching, 17 percent recalled Nancy Karweit's session on whole language learning, and the remaining participants recalled an aspect of the symposium's format.

Participants were then asked what they remember best about the presenters or their sessions. One respondent recalled Matthew Lipman's "interesting perspective on children's philosophy." Another respondent recalled that Joseph Campione and Palincsar had worked together before. She said this enabled them to "discuss one another's work."

One purpose of the "Making Connections II" symposium was to bring four innovative educational developers together and have them make connections between and among their respective programs. Eighty-three percent of the participants said the symposium accomplished this. One respondent who answered "yes" said the symposium format "Forced the presenters to interact; the participants were able to see both the pros and cons of an issue, instead of just the surface." The respondents who answered "no" said they saw more connections in the first Making Connections symposium.

The participants were then asked to describe any connections they made at the symposium. Sixty-seven percent described a connection with one of the four presenters; 25 percent described a connection with another participant.

When asked to describe any connections they made since the symposium, 25 percent described further connections with Palincsar, such as requesting

transparencies from her presentation and contacting her to present at a conference; 17 percent described connections with other participants; and the remaining participants were unable to describe any connections. A teacher from Richmond, Virginia, said she met several teachers from her state and has been been sharing assignment ideas on whole language learning.

Participants were then asked how they used the resource materials or presenters' perceptions in their work. Seventy-five percent indicated that they had used the materials in their work. Uses ranged from teaching strategies, to classroom assignments, to writing a graduate course term paper. An elementary teacher from South Carolina said she used the information from the cooperative learning session to write a computer grant proposal for her school. "More than likely we will only get one computer per class. To make this work, the school must use cooperative learning."

Participants indicated that they shared symposium information or materials with approximately 113 persons. This number suggests that—on the average—each one of the 12 participants in the sample shared symposium information with nine other persons.

Finally, participants were asked if they might attend a third Making Connections symposium. All participants—100 percent—indicated that they would attend "Making Connections III." Fifty percent of the participants offered suggestions for presenters and programs. Suggestions included Joan Fulton, director of the Developmental Skills Institute; Karen Runey, cognitive behavior strategies; a written expression program; and programs concerned with converting a junior high into a middle school.

Section IV: New Connections Reflect Service Orientation

by Yvonne Thayer
Virginia Department of Education

Conferences like "Making Connections II" have been unusual in the education arena. Typically, educators join together to either focus on one topic (or at least a theme) or they gather together for training on a specific methodology. Making Connections proposed a new format, that of contrasting what may have seemed as disparate approaches to instruction, in order to find either the commonalties or to synthesize two or more of the methodologies into an instructional process. The success of such an experiment cannot be assessed at the conclusion of the event, but is realized by those who attended—both presenters and participants—as they think about what was discussed at the symposium and as they begin the process of synthesizing proposals and statements into meaning for them.

This symposium represented more than an opportunity to process content differently. It offered a select opportunity for educators in various roles to come together and talk. In Virginia, it is highly unusual for groups of educators, as diverse as those at this symposium, to come together to jointly experience an education-related professional activity. Bringing together staff developers with teacher educators and classroom teachers to talk with educational researchers is unusual, but bringing these four groups together to discover new issues in instruction is highly unlikely.

The fact that this symposium has been held twice speaks to the need for collaboration felt in the education community. Educators are seeking links between their own experience and that of others in different roles in order to help this process called education make sense. Teacher educators, researchers, and administrators know that whatever they endorse, it is the classroom teacher who is ultimately responsible for making the process and the materials work. And teachers readily admit, they alone can no longer carry all of the responsibility for schooling, especially with the growing curriculum and the call for reform. They need partners who will offer support in many forms, not the least of which is to help teachers elucidate the plethora of ideas presented to them, and to help them harness resources required for the 1990s student.

With so many acutely publicized issues facing educators, such as an unacceptable dropout rate, coupled with emerging technologies and school-based management, educators in all roles are seeing the need to discuss instruction across the artificial barriers previously built by the educational infrastructure. Recognizing that no one has all of the answers—indeed, no one is yet able to formulate all of the questions—we, in public education, are beginning to honor our various levels of expertise and experience so that we can work together to discover a better educational system that is appropriate for students in today's fast-paced, global environment.

At no time has the need for making connections been greater than it is today in America's schools. While the need to see staff development differently and develop some kind of continuous model of education for teachers continues, there are other connections that must be made in order for public education to survive today's challenges. Most schools have not undertaken serious restructuring efforts. They continue to operate as they did in the 1950s, and they reflect an isolationist attitude that is incongruent with the totally interdependent world in which our students live. It is time to open up the schoolhouse doors and welcome parents, school board members, and business leaders to join in the problem-solving

process. It is time to share all of the expertise our communities have to offer as we reconstruct our schools into places where students want to come, teachers enjoy working, and communities show proudly.

For those attending "Making Connections II," it is time to ask a new question. Rather than asking how can we connect teaching methodologies together for a better instructional system, we must now ask how can we make connections among all of the education players in order to form an instructional system that will work in the 1990s. Of course, this kind of question is very broad and does not lend itself to a solution found in a conference setting. However, there are multiple settings conducive to making critical connections, and each of these settings must be nurtured and supported in order to keep the discussion focused on the issues facing educators today. Perhaps thought-provoking symposia will continue to be one way of connecting, but others are emerging and deserve careful attention.

Connections Initiated

A number of new activities have started in Virginia that lay the foundation for collaboration in new and exciting ways. There doesn't appear to be any one event that is causing these collaborative groups to form, but all groups do share one identified need: They all recognize that public schools alone cannot harness all of the resources needed to address today's problems. These groups have not responded to any one individual who is asking for collaboration, but have formed because educational leaders at many levels who occupy positions in the vast educational arena see the vision for a new kind of educational experience that demands connections to three types of players: (1) the "highly capable" who can offer academic expertise not previously available, (2) the "powerful" who can harness political resources, and (3) the "workers" who are able to bring services directly to students.

Department of Education Service Orientation

The Virginia Department of Education (DOE) has recently reorganized with the intent on becoming a service-oriented agency. Previously viewed as a regulator, mandator, and monitor, DOE has restructured dramatically and adopted this new role with the blessing of the local divisions in the state.

An interesting component of this new organization is the role of the regional representative. DOE has established 10 regional offices throughout the Commonwealth, each staffed with one representative whose job it is to make connections among the local divisions, the colleges and universities, and DOE. The rep acts as a broker of services, bringing in businesses and community interests when appropriate. The reps are an extension of DOE into the schools, both as a visible representative and as a participant in the change process. Each rep was selected in part due to his/her broad base of experience in education, and was viewed as a person who could strengthen ties among all of the groups interested in improving educational services.

This new position actually forges new connections, and it is the role of these representatives to not only encourage collaboration, but to stimulate it in localities that have traditionally operated in isolation.

Business Partnerships

Talk to any school leader, and you will hear something about business partnerships. Whether the schools are involved in partnerships or are looking for new partners, educators have accepted the fact that business is their friend and can offer a kind of political support so needed in a tight economy. Virginia has many kinds of business partnerships, from the simple financial support for a school project to elaborate efforts at systemic change.

Xerox's partnership with DOE and six school divisions in the state is truly unique. For the first time, DOE is helping educators understand a restructuring strategy that was successful in business and apply it to local schools. While Xerox has contributed great

resources to the project, the focus is not on money for education, but on the change process as it relates to quality in schools.

The connection made in this project is exciting, because we find business collaborating with schools to help attack major problems, not by pouring money into special programs, but by modeling a process for preventing errors and "doing things right the first time."

Collaborative Program for Agencies

A third effort being considered in Virginia comes through the efforts of the Institute for Educational Leadership (IEL) in Washington, DC. IEL offers many programs to promote leadership in education, and is currently considering a new program that focuses on collaboration. Having long recognized the need for sharing good thinking and experiential learning, IEL has proposed a fellowship program for Virginia that focuses on interagency collaboration. Representatives of educational institutions and social agencies would come together as a group for a year to learn how to collaborate effectively, and begin doing so as they study issues relevant to children and education. While this program has just been proposed and has not been finalized, it represents a recognition of the type of leadership programs needed to help people understand how to work together, as well as why to work together. It is a way of making connections that goes beyond any schoolhouse, any department of education.

Making Connections. More than a symposium. A way to do business in the 1990s and the way to bring changes to public education.

Section V: Where Are We Going From Here?

by Sheila Reyna, CE-ATL
Radford University

The success of our two Making Connections symposia demonstrates once more the need to link educational researchers and practitioners in a dynamic and interactive way. Teachers in the United States today are meeting multiple challenges in the classroom. Teachers are eager to find better ways of addressing the diverse needs of school children who are currently identified by such labels as at risk, marginal, gifted, talented, learning disabled, emotionally disabled, educable, trainable, physically disabled, and a recently identified evergrowing group: the attention-deficit-disorder students.

The research to help the classroom teacher is disseminated in professional research journals and magazines. The implementation of the findings, however, is not in the mere reading of information. There must be exchange among the teachers and researchers to clarify, elaborate, develop, and guide implementation of the findings. The infrastructure for lifelong professional career development is weak at best. Typically, it is an in-house ad hoc attempt to meet the most recent state requirements for teacher certification and recertification.

While teaching is described as a profession, it has not yet fully availed itself of the professional model. A profession by definition requires advanced study in a specialized field with special training experiences for licensed practice. All professionals are expected to keep up with the changes in their fields, read their journals of research and practice, and introduce, when necessary, changes in the exercise of their profession. Educators are no exception to these professional requirements.

Unfortunately, the mortality rate of students' minds is not as dramatically measurable as the mortality rate of infants or AIDS patients. The mental mortality results, however, are equally devastating to the clients. The death of young minds is represented by a national dropout statistic of 25 percent of the school-age population in the United States today.

Educators cannot be placed in a classroom with a closed door and be expected to keep up with research and innovative practice in their respective areas of specialization. There must be time for professional development in a systematic and developmental way.

To develop a true "profession," the practitioners must monitor themselves, and see to their own developmental strategies for lifelong career growth. Additionally, there is a great need to coordinate skill and knowledge building, across the different public educational levels from K-12 through postsecondary education. More than just exchanging ideas, the different levels of education must coordinate and design action plans for a coherent assessment and evaluation of education performance outcomes. This must be at the top of any education reform agenda.

So often, educators complain that they reteach the same basic skills. Middle schools complain about elementary schools, secondary schools complain about middle schools, and postsecondary institutions complain about the high schools. Then, industry tells us they spend $100 billion a year teaching an "illiterate, innumerate" workforce! How to get it all together becomes the issue. Schools would love a $100 billion opportunity to do it right the first time. (That is, indeed, another issue!)

The Center for the Advancement of Teaching and Learning presents professional opportunities for such exchange and definition. It is Radford University's institutional vehicle for the articulation of internal and external partnerships for the advancement of teaching and learning in public education. Under the direct

supervision of the vice president for academic affairs, it has an Advisory Board of 22 members representing regional, state, and local levels of education.

The formation of the Center includes the explicit declaration of underlying beliefs that shape its philosophy and mission. The beliefs are as follows:

- Teaching is a profession and requires career-long development to keep abreast of changes in the field.
- Teaching is the political and moral institution upon which a nation's destiny rests.
- Teaching requires moral integrity, awareness of democratic principles, and a thorough knowledge of the content and pedagogy required to effect successful learning through the act of teaching.
- The brain is the center of human learning and educators must focus on application of brain research findings to improve teaching and learning.
- Teaching and learning are intrinsically interactive complements in the classroom setting.
- Learners learn at different rates and have different learning styles.
- Formal and informal learning experiences must be viewed as a continuous system and must be included in the design of formal schooling.
- Knowledge structure and dynamics of each discipline must be accounted for in curriculum design, instructional delivery, and assessment.
- Thinking patterns involved in learning are related to the particular content of a discipline.
- Assessment of learning must be both formative and summative.
- Mutual respect and accountability are an integral part of teaching and learning in the classroom.
- Motivation of the student is a prime concern in successful teaching and learning.
- Differences in prior knowledge are conditions that influence the planning of successful teaching and learning in the classroom.
- Learning is affected by the developmental stages of life. Thus, the learner's age and stage in life contribute to the design of a successful teaching and learning experience.
- Best learning occurs in a psychologically safe climate.

The Center's mission, then, is a tri-partite one consisting of the following:

- helping educators systematize a professional growth plan for their careers;
- collaborating with other educational entities to improve the articulation of public resources to benefit education; and
- linking research and practice from an interdisciplinary perspective; in particular, working with the Radford University Center for Brain Research and Information Sciences for application to classroom teaching.

We plan to have our third Making Connections symposium in the 1992-1993 academic year and invite our colleagues to share in the planning by suggesting themes, speakers, etc., to be built around processes in the classroom: from reading and writing to math K-12 and beyond. Let us work from a developmental career perspective. Let us view ourselves as professionals. While we address the needs of the various levels of education, let us define the professional outcomes we wish for ourselves as educators. We must work with the total community in a complex society. In the classroom, however, we are in command. Educators as professionals in that classroom can be a pivotal force to shape the students who are America's human capital as it makes its place in the global community.

APPENDICES

Appendix A: Biographies

BIOGRAPHIES

Dr. Joseph Campione is a professor in the Division of Educational Psychology at the University of California, Berkeley, and director of the Graduate Group in Special Education. His areas of teaching and research include metacognition and instruction, learning and memory in children, intelligence, and dynamic assessment. He has also been a research professor at the Center for the Study of Reading and Cognition at the University of Illinois, Champaign.

Dr. Nancy Karweit is principal professor of research science at the Center for Research on Elementary and Middle Schools at the Johns Hopkins University. Her areas of research and teaching include time and learning, effective learning strategies, and whole language-based programs for at-risk children at the preschool and kindergarten level. Her major areas of research have been in the field of early childhood education.

Dr. Matthew Lipman is a professor of philosophy and director of the Institute for the Advancement of Philosophy for Children at Montclair State College. Trained in philosophy with a specialization in aesthetics, his focus for the past 20 years has been working to get schools that "teach for thinking and emphasize 'thinking for oneself'." From that focus has emerged the 14-volume Philosophy for Children curriculum. He is the editor of *Thinking*, an academic quarterly.

Dr. Annemarie Palincsar is associate professor in curriculum, teaching, and psychological studies at the University of Michigan. She prepares teachers to work with special education students, and was herself a special education teacher and administrator for several years. Her areas of research include reciprocal teaching, peer collaboration, comprehension instruction, strategy instruction, and an integrated literacy curriculum with primary grade special education.

Appendix B:
Feedback Form

Making Connections II Feedback Form

Please complete this feedback form and leave it in the Ballroom Foyer on Friday, or mail your comments to Dr. Sheila Reyna, Box 5820, Radford University, VA 24142.

What is your overall reaction to this symposium? In what way is this kind of professional dialogue helpful to you?

Please comment on any part of the symposium that you felt was particularly helpful or was of little help to you.

Are you interested in receiving a copy of the proceedings and papers from this symposium?

What kind of followup activities would be helpful to you or your staff?

Comments regarding the facilities/food/services of the hotel:

Your position: _____ School administration

_____ Higher education

_____ _____

Appendix C:
Protocol Sheet

Evaluation Calls for "Making Connections II"

Date: _____

Name: _____

Employing Agency: _____

Location: _____

Phone Number: _____

Hello, my name is _____ calling from the Appalachia Educational Laboratory (AEL). I'm calling with a few questions about your participation in the "Making Connections II" symposium. Our call shouldn't take more than 10 to 15 minutes to complete. Is now a good time to talk about the "Making Connections II" symposium? [Answer] [If not, when may I call you back to ask these few questions?]

As I mentioned earlier, I am calling to ask you a few questions about your participation in the "Making Connections II" symposium that was held in Roanoke, Virginia, on November 8-9, 1990. I understand that you completed a feedback form for the symposium. Our talk today will center on the connections, if any, that you have made since the symposium. Also, you should know that any information you choose to share with me will be aggregated with that of other participants I speak with and will be reported anonymously in the evaluation section of the symposium proceedings document. As a participant, you will receive a copy of the proceedings document. Do you have any questions before we begin?

Do you recall your participation in the symposium?

Yes No

Circle Yes or No. If Yes, continue on with the questions.

1. What aspects/features of the symposium do you recall best?

2. What one aspect/feature of the symposium stands out most in your mind?

3. Do you recall any of the four presenters featured at the symposium?

   Yes No

   What about them or their presentation do you remember best?

4. The objective of the "Making Connections II" symposium was to bring four innovative educational developers together and have them make connections between and among their respective programs. Do you feel the symposium accomplished this objective?

   Yes No

   Can you elaborate on why you feel this way?

5. Would you briefly describe any connections you made **as a participant at the symposium**?

6. Would you briefly describe any connections you have made with other participants or the presenters **since the symposium**?

7. Can you tell me how you have used the resource materials or presenters' perspectives in your work?

8. Can you give me a general idea and number of how many others with whom you have shared information from the "Making Connections II" symposium?

9. And, finally, might you attend a third Making Connections symposium?

   Yes No

   If Yes, who would you most like to have as featured presenters or what new programs would you like to hear about?

Thank you so much for your cooperation. Your input will be helpful to us.

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U.S. Department of Education

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